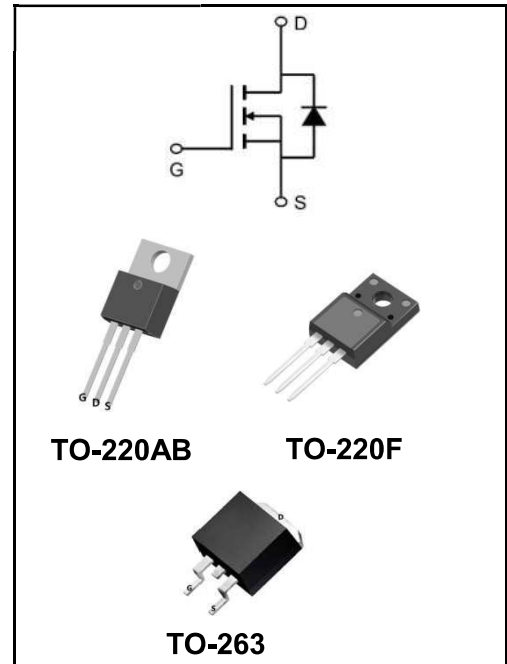


200V N-CHANNEL ENHANCEMENT MODE MOSFET
MAIN CHARACTERISTICS

I_D	34A
V_{DSS}	200V
R_{DS(on)-typ}(@V_{GS}=10V)	< 85mΩ (Type:60 mΩ)

Application

- ◆Power amplifier
- ◆motor drive


Product Specification Classification

Part Number	Package	Marking	Pack
YFW34N20AT	TO-220AB	YFW 34N20AT XXXXX	1000PCS/Box
YFW34N20AF	TO-220F	YFW 34N20AF XXXXX	1000PCS/Box
YFW34N20AS	TO-263	YFW 34N20AS XXXXX	800PCS/Reel

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	200	V
Drain Current- Continuous	I_D	34	A
Drain Current- Pulsed	I_{DM}	112	A
Gate - Source Voltage	V_{GS}	±30	V
Single pulse avalanche energy	E_{AS}	588	mJ
Avalanche Current	I_{AR}	28	A
Repetitive Avalanche Current	E_{AR}	15.8	mJ
Peak Diode Recovery dv/dt	dv/dt	5.5	V/ns
Power Dissipation T _c =25°C	P_D	158	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Maximum Lead Temperature for Soldering Purposes	T_L	300	°C
Thermal Resistance, Junction-to-case	R_{θJC}	0.79	°C/W
Thermal Resistance, Junction –to-ambient	R_{θJA}	62.5	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	200	-	-	V
Breakdown Voltage Temperature Coefficient	$I_D=250\mu A$, referenced to 25°C	$\Delta BV_{DSS}/\Delta T_J$	-	0.19		V/°C
Zero Gate Voltage Drain Current	$V_{DS}=200V, V_{GS}=0V, T_C=25^\circ C$	I_{DSS}	-	-	1	μA
Gate-body leakage current, forward	$V_{DS}=0V, V_{GS}=30V$	$I_{GSS(F)}$	-	-	100	nA
Gate-body leakage current, reverse	$V_{DS}=0V, V_{GS}=-30V$	$I_{GSS(R)}$	-	-	-100	
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2.0	-	4.0	V
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=14A$	$R_{DS(ON)}$	-	60	85	mΩ
Forward Transconductance	$V_{DS}=40V, I_D=14A$	g_{fs}	-	24	-	S
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	2879	3742	pF
Output Capacitance		C_{oss}	-	362	470	
Reverse Transfer Capacitance		C_{rss}	-	81	105	
Turn-on delay time	$V_{DD}=100V$ $I_D=28A$ $R_G=25\Omega$ $V_{GS}=10V$ (note 4, 5)	$t_{d(on)}$	-	28	69	ns
Turn-on Rise Time		T_r	-	251	494	
Turn-Off Delay Time		$t_{d(OFF)}$	-	309	617	
Turn-Off Fall Time		t_f	-	220	412	
Total Gate Charge	$V_{DS}=160V$ $I_D=28A$ $V_{GS}=10V$ (note 4, 5)	Q_g	-	103	136	nC
Gate-Source Charge		Q_{gs}	-	16	-	
Gate-Drain Charge		Q_{gd}	-	53	-	
Maximum Continuous Drain-Source Diode Forward Current		I_S	-	-	28	A
Maximum Pulsed Drain-Source Diode Forward Current		I_{SP}	-	-	112	A
Maximum Continuous Drain-Source Diode Forward Current	$I_S=28A, V_{GS}=0V$	V_{SD}	-	-	1.4	V
Reverse Recovery Time	$I_S=28A, V_{GS}=0V$ $di/dt=100A/\mu s$ (note 4)	t_{rr}	-	218	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.91	-	nC

Notes:

- 1: Pulse width limited by maximum junction temperature
- 2: L=1.5mH, IAS=28A, VDD=50V, RG=25 Ω, Starting TJ=25°C
- 3: ISD ≤28A, di/dt ≤200A/μs, VDD≤BVDSS, Starting TJ=25°C
- 4: Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%
- 5: Essentially independent of operating temperature

Ratings and Characteristic Curves

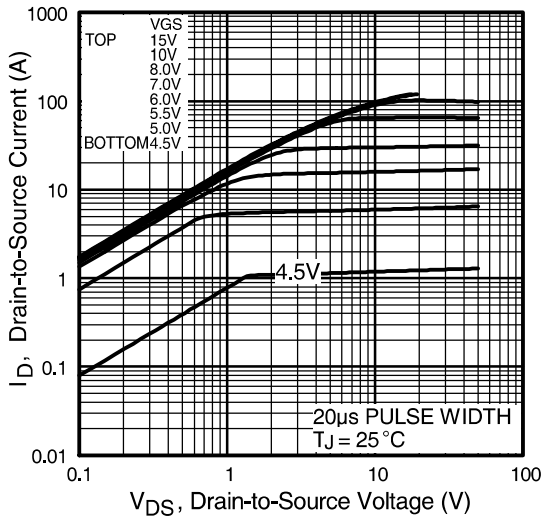


Fig 1. Typical Output Characteristics

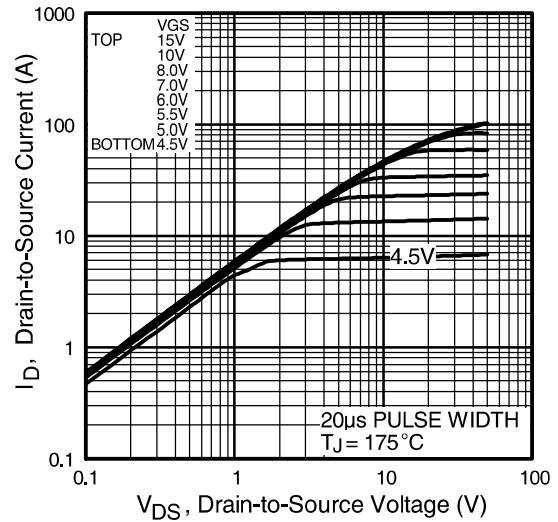


Fig 2. Typical Output Characteristics

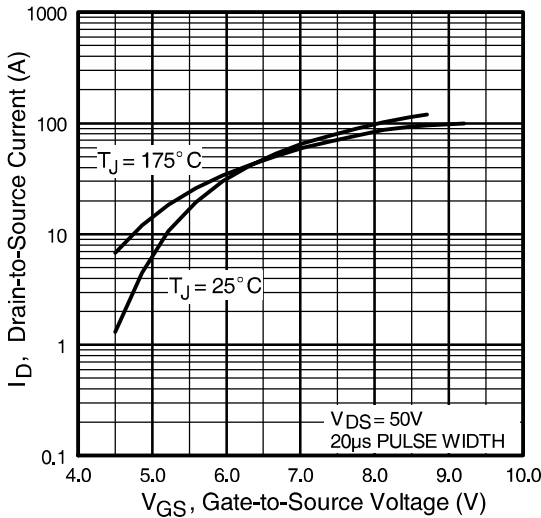


Fig 3. Typical Transfer Characteristics

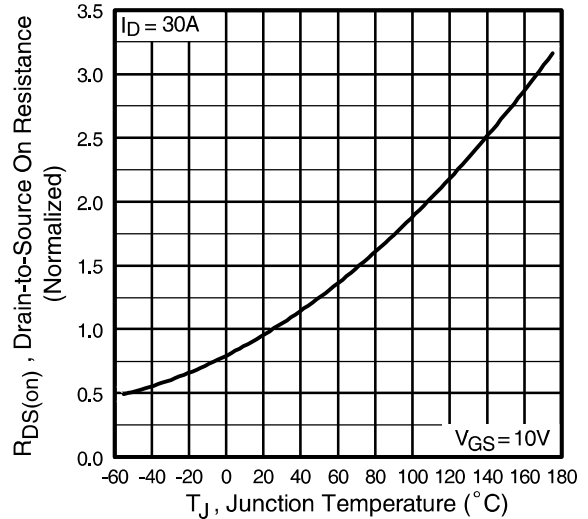


Fig 4. Normalized On-Resistance Vs. Temperature

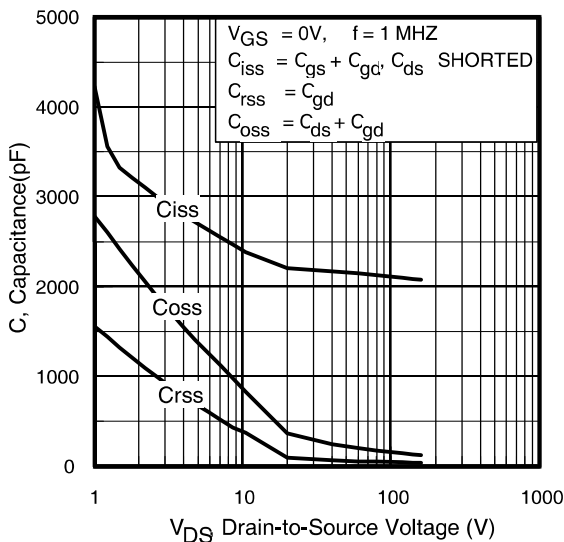


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

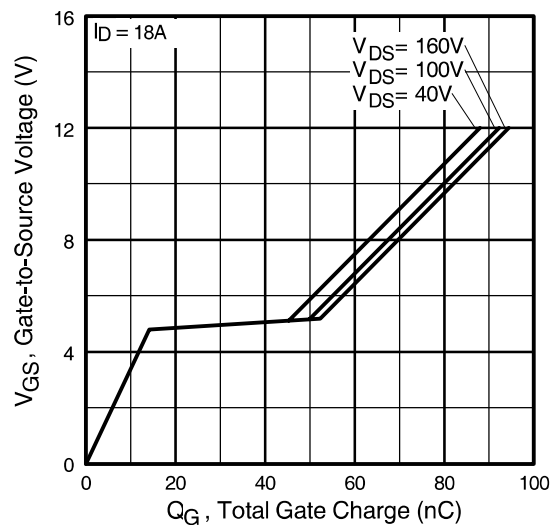


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

Ratings and Characteristic Curves

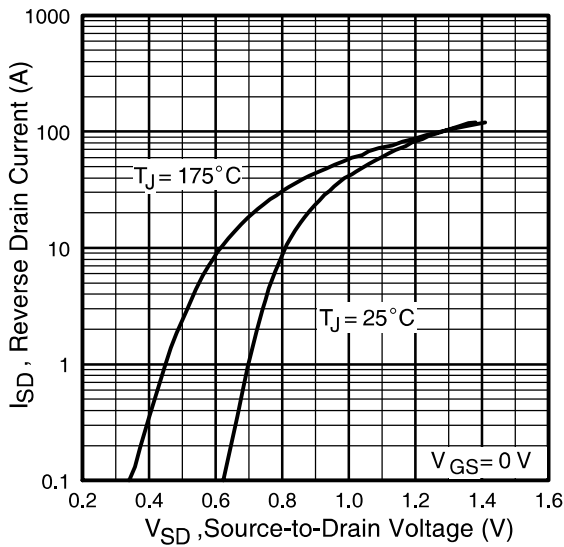


Fig 7. Typical Source-Drain Diode Forward Voltage

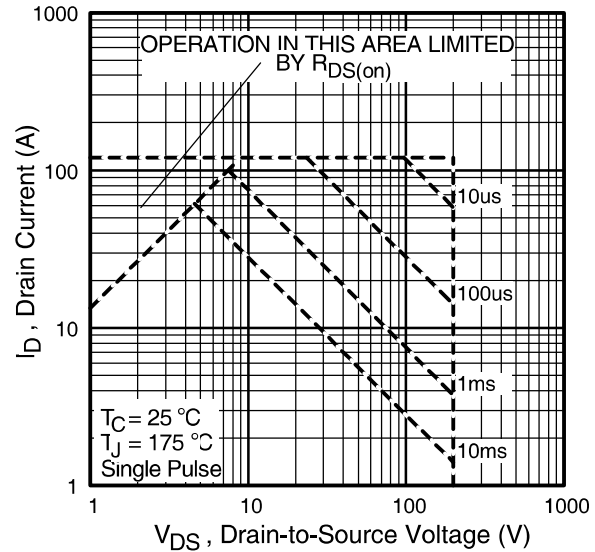


Fig 8. Maximum Safe Operating Area

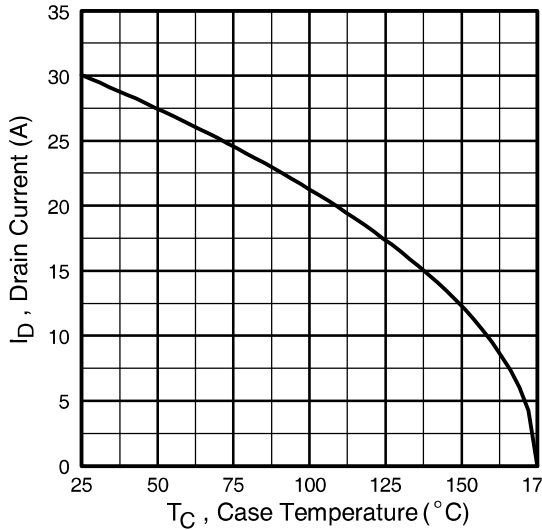


Fig 9. Maximum Drain Current Vs. Case Temperature

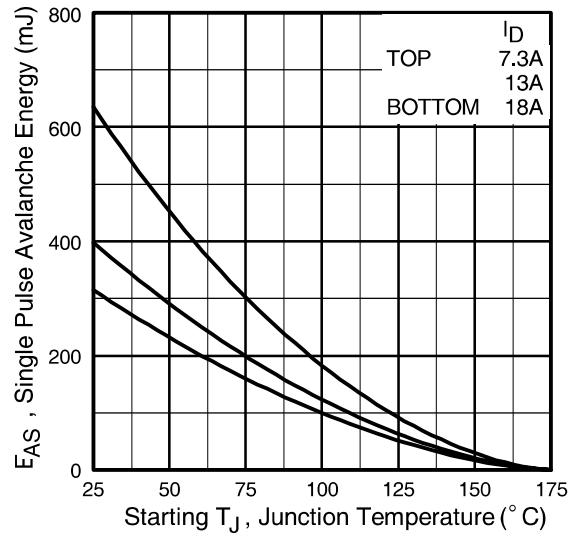


Fig 12c. Maximum Avalanche Energy Vs. Drain Current

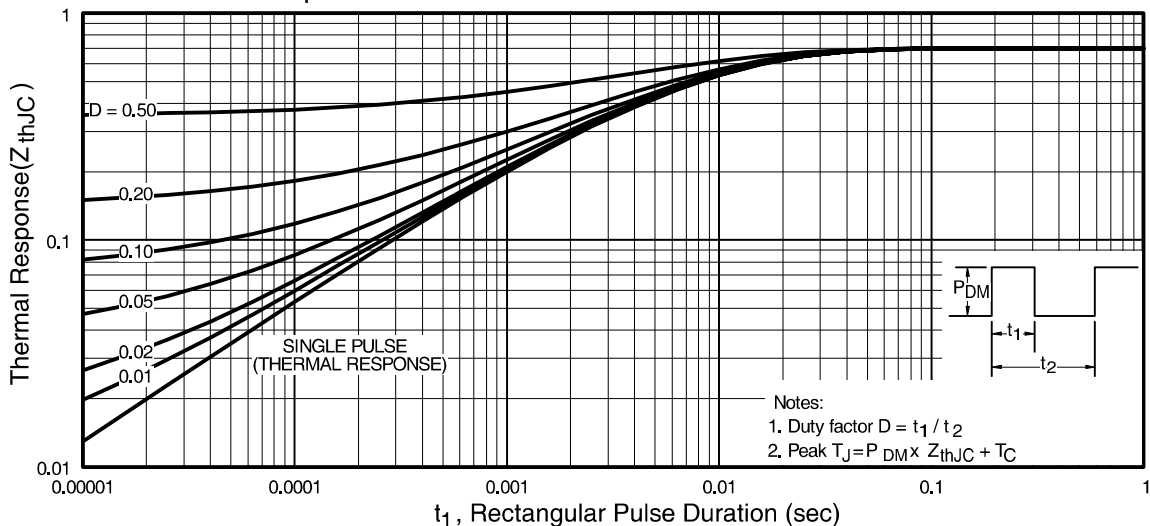


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline Dimensions Millimeters

TO-220AB

	Dim.	Min.	Max.
	A	10.15	10.35
	B	2.65	2.95
	C	3.70	3.90
	D	28.5	29.5
	E	1.30	1.45
	F	6.35	6.55
	G	2.9	3.3
	H	15.0	16.0
	I	0.38	0.42
	J	4.45	4.55
	K	1.25	1.35
	L	Typ 5.08	
	M	Typ 2.54	
	N	3.1	3.3
O	0.76	0.84	
All Dimensions in millimeter			

TO-220F

	Dim.	Min.	Max.
	A	9.95	10.25
	B	2.95	3.25
	C	1.25	1.45
	D	12.95	13.25
	E	0.50	0.65
	F	3.1	3.3
	G	1.30	1.45
	H	Typ 2.54	
	I	Typ 5.08	
	J	4.60	4.75
	K	2.50	2.65
	L	6.35	6.55
	M	15.4	16.0
	N	2.75	3.05
O	0.48	0.52	
P	0.76	0.84	
All Dimensions in millimeter			

Package Outline Dimensions Millimeters

TO-263

Dim.	Min.	Max.
A	10.1	10.2
B	7.4	7.6
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.78	0.86
H	1.2	1.3
I	Typ2.54	
J	8.4	8.6
K	4.45	4.55
L	1.25	1.35
M	0.02	0.1
N	2.4	2.8
O	0.36	0.40
All Dimensions in millimeter		